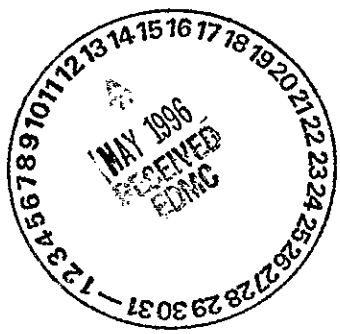
3410-SCU-080

0043951

MAXWELL S-CUBED Division

NARRATIVE



December 16, 1992

Narrative Project: 92-321
Reference No.: 32359-51
Client: WHC
SDG No.: 3410

VOLATILES

The samples were analyzed according to the OLM01.8 Statement of Work. The samples in this SDG were very clean and the analyses non-problematic. Only Methylene Chloride and Acetone were detected in concentrations similar to those found in the blank.

The quality control results were acceptable. All surrogate recoveries were excellent. There was no MS/MSD set for this SDG. The LCS was found to have severe interference from the sample analyzed prior to it, and consequently it is not reported. All samples were analyzed within holding time and the blank was clean. All initial and continuing calibration data are compliant.

SEMIVOLATILES

The samples were analyzed according to the OLM01.8 Statement of Work. The sample was very clean and the analyses non-problematic. Only target analyte detected was Di-n-butylphthalate (260 ppb). DDT was detected as a TIC.

The quality control results were generally acceptable. Surrogate recoveries were within QC limits. All LCS recoveries were excellent. Please note that Di-n-Octylphthalate was extra in the matrix spiking solution. The results are reported on form I, flagged with "X", but recovery data are not included on form III. All samples were extracted within holding times and the blanks were clean. All initial and continuing calibration data are compliant.

ORGANOCHLORINE PESTICIDE/PCBs

The samples were analyzed according to the OLM01.8 Statement of Work. The sample B07KP6 needed to be analyzed at a 1:10 dilution in order to bring DDT and

1 of 2 12-3-94

DDE into calibration range. Both undiluted and diluted analyses are reported. DDT concentration in the sample was around 330 ppb, and DDE at 260 ppb. Both were confirmed by GC/MS. Also DDD was found in the GC/MS analysis of the semivolatile fraction. However, it was not found on column DB-1701, although it was found on DB-608. DDD is not reported as detected in the sample, but it is possible that it is in the sample, and the retention time shifted on column DB-1701 for some reason. If this was the case, the estimated concentration of DDD in the sample would be around 100 ppb.

The sample was extracted within holding time, and the blank was free of contamination. All initial and continuing calibration data are compliant.

The quality control results were generally acceptable. All surrogate recoveries are within QC limits for the sample. However, all recoveries were slightly low (51-59%) for the blank, and Tetrachloro-m-xylene recovery is slightly low (59%) for the LCS on column DB-1701 only. All LCS recoveries were excellent. There was no MS/MSD set for this SDG.

ORGANOCHLORINE HERBICIDES

The samples were analyzed according to SW-846 Method 8150. Sample BO7KP6 contained no herbicides.

The quality control results were acceptable. Surrogate recoveries were acceptable. LCS recoveries were excellent.

Please note that the quantitation column was DB1701 and the confirmation column was DB608. Quantitative information is not rigorously reviewed for the confirmation column. Calibration results were acceptable.

ORGANOPHOSPHORUS PESTICIDES

The samples were analyzed according to SW-846 Method 8140. There were no hits in this group of samples.

A 5 point calibration curve was run for individual component pesticides. A 3 point calibration curve was used for some of the problem compounds. Continuing calibration was high on most of the "A" mix compounds, the "B" mix compounds were generally acceptable.

16 12-2-94

MAXWELL
S-CUBED Division

NARRATIVE

The quality control results were generally acceptable. The surrogate recoveries were approximately 150% for all compounds. Ethion was the surrogate spike, calibrated from the "B" mix. The high bias is probably due to a standards prep error.

LCS, MS and %RPD recoveries were generally acceptable for several compounds. Problems occurred with M.parath, Merphos, Sulprophos, and Coumaphos which are typically problem compounds.

TRPH

The samples were analyzed according to EPA Method 418.1 for TRPH. Please note that these samples were batched with another group of samples. The quality control results were acceptable.

METALS

The samples were analyzed according to the ILM02.1 Statement of Work for the CLP metals list. The GFAA metals were initially analyzed undiluted. Due to low analytical spike recoveries, the GFAA metals were reanalyzed at a dilution of 10 with acceptable results. Only the diluted samples are reported.

The quality control results were acceptable. Pb was detected in the prep blank greater then CRDL, however, the level in the sample is greater than 10 times the amount in the blank and no corrective action was necessary. The soil LCS results were within advisory ranges.

ANIONS

The samples were analyzed according to EPA Method 300.0 for anion. SO_4 required a dilution of 10 times due to high concentration level. All other anions were reported on straight analysis run. For soil, 20 gm of sample was leached into 100 ml of DI Type II water prior to analysis. The quality control results were acceptable. MS and %RPD were within the control limits.

CHROME IV

The samples were analyzed according to EPA Method 7196 for colorimetric Chrome VI analysis. The sample required a 1:5 dilution prior to analysis due to matrix interferences. For soil, 20 gm of sample was leached into 100 ml of DI Type II water prior to analysis. The quality control results were acceptable.

ic 12-2-94

MAXWELL
S-CUBED Division

NARRATIVE

NO2/NO3

The samples were analyzed according to EPA Method 353.3 for NO2/NO3. For soil, 20 gm of sample was leached into 100 ml of DI Type II water prior to analysis. The quality control results were acceptable.

John DeWald
Project Manager

enclosures

r:\narr\n3410

id 12.2.94

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 1

2. Preprinted No. 051181

QA Log No. EQA-92-117

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg../Spec./Other No.	7. Rev.
N/A	N/A	N/A	N/A	N/A

8. Program/Project/Other: North Slope Expedited Response Action

9. Safety Class: N/A

10. ASME Code Items: ☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address:
Data Chem
960 West Levoy Drive
Salt Lake City, UT 84123-2547

12. Notification of Potential Occurence Required: ☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.
N/A	N/A	N/A	N/A

17. Inspection Criteria: ☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other WHC-SD-EN-AP-099, Rev.

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1.	North Slope Expedited Response Action Sampling Plan, WHC-SD-EN-AP-099, Rev. 1 specified the phosphorus pesticide analysis method to be SW-846/8190. The actual analytical method is SW-846/8140 which the analytical lab utilized in the phosphorus pesticide analysis.	Accept, lab sample method from data chem. Error in WHC Sample Plan, WHC-SD-EN-AP-099 Rev. 1 laboratory method was not correct. Change table 2 page 7 line "Phosphorus pesticides" second column to SW-846/8140.

20. Originator's Signature: C. L. Manley — Date: 12/8/92

23. Design Document Change Required? ☐ Yes, Doc. No. _____ ☐ No

21. Cognizant QA Manager's Signature: [signature] — Date: 12-22-92

24. Corrective Action Required? ☐ Yes, No. _____ ☐ No

Disp. App.

25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
C. L. Manley	12/8/92				
QA Engineer	Date	Signature/Org.	Date	Signature/Org.	Date
E. D. Hand	12/8/92				

Close

27. Accept ✓ Reject _____ Follow on NCR _____

E. D. Hand — QA/C Personnel — 12/22/92 Date

A-7310-104-(10/91)

DON'T SAY IT --- *Write It!*

DATE: September 1, 1993

TO: File 3410-SCU-080

FROM: Linda J. Dickerson H4-19

Telephone: 372-2895

cc: 3395-SCU-078

SUBJECT: Validation Summary Final Report

Final validation report for this package is filed with 3395-SCU-078

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator J. G. Lucas

Company Contact Frank Gustafson Telephone (509) 376-1736

Project Designation/Sampling Locations North Slope EIA - H-06-H(E) Collection Date 11-2-92

Ice Chest No. RM #5 Field Logbook No. EFL-1031

Bill of Lading/Airbill No. 251900658 9 Offsite Property No. W93-0-0002 38

Method of Shipment Emery

Shipped to S-Cubed San Diego, CA

Possible Sample Hazards/Remarks —

Sample Identification

B07KP6 - (1) 120ml aS
(1) 250ml aG
(3) 120ml aG

☐ Field Transfer of Custody	CHAIN OF POSSESSION	(Sign and Print Names)
Relinquished by: Jonathan G. Lucas Jonathan G. Lucas	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition		
Disposal Method:	Disposed by:	Date/Time:

Comments:

2:30 pm

A-6000-407 (12/90)

12-2-94

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST 4 of 11-2-92

Collector C.A. Fowler Date 11-2-92 (collected)

Company Contact Frank Custafson Telephone (509) 376-1736

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
B07KP6	S	11-2-92	1100/1120	120 ml glass septum - VOA (CLP)
				250 ml amber glass - Semi VOA (CLP)
				PCB/Pests (CLP), Phoschorus Pests (8140)
				Herbicides (8150)
				120 ml amber glass - ICP metals (CLP), AA metals
				(As, Pb, Se, Tl - CLP), Hg (CLP)
				120 ml amber glass - Anions (F, Cl, PO4, SO4 - EPA 300.0
				(NO2, NO3 - EPA 353.3), Chromium VI (EPA 218.4
				120 ml - TPH (EPA 418.1)

*Type of Sample: A = Air; DL = Drum Liquids; DS = Drum Solids; L = Liquid; O = Oil; S = Soil; SE = Sediment; SL = Sludge; SO = Solid; T = Tissue; W = Water; WI = Wipe; X = Other

Field Information N/A

Special Handling and/or Storage Cool 4°C

Possible Sample Hazards —

A-6000-406 (06/91)

IF 12-8-94

SDG Memo/Sample Summary

Client Name:	WESTINGHOUSE HANFORD CO.	**Date:**	4 Dec 1992
Project Name:	92-321	**Update No.:**	
SDG No.:	3410	**Work Order No.:**	32359-51
Project Manager:	J. DEWALD		
Mail Date:			

Client Samp No.	S-Cubed Samp No.	Date Rcvd	Date Samp	Matrix	ANIONS	CRVI	FURNCLP	HERBEXT	HGCLP	ICPCLP	NO2/NO3	OCPOLM	OPP8140	SVOAOLM	TRPH	VOAOLM
B07KP8	3410-01	11-6-1992	11-2-1992	SOIL	X	X	X	X	X	X	X	X	X	X	X	X

(X) = Non-Billable Sample

SC-10, Rev 8/92

lg 12-2-94

PLEASE TYPE OR USE BALL POINT PEN. BEAR DOWN FIRMLY!
KEEP MARKS WITHIN BOXES TO ASSURE ACCURACY

FORM OF PAYMENT

Check ☐ GN ☐ FCCOD ☐

Bill to Shipper XX Bill to Consignee ☐ Third Party Billing ☐

Shipper's Account Number: E 850281585

EMERY WORLDWIDE — A CF Company

SERVICES — UNITED STATES / CANADA

Same Day (Extra Charges) ☐ AM XX PM ☐ Second Day ☐

Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐

Business Documents ☐ Customs Clearance ☐ Delivery ☐

Date: 11-04-92 | Origin: PSC | 251900658 9

FULL FOR SHPT. NO TAB

From:
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA 99352
Canada ☐

To:
JOHN DEWALD
S-CUBED
3398 CARMEL MT. ROAD
SAN DIEGO CA 92121-1095
Hold for Pick Up ☐ Canada ☐

Tariff Dest | Gateway | $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, ...

Customer's Reference Numbers: W81300 PD42A W93-0-0002#38

Consignee's Account Number: E

Description	Pcs	L	W	H	Total Pieces	Total Weight
1 ICE CHEST RM#5 SOIL SAMPLES B07KP6	1	17	14	17	1	22

FOR INFORMATION OR RATES CALL 1-800-44 EMERY (1-800-443-6379)

Declared Value $

2519006589

Remarks

Zip Ship ☐ — For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☐ Urgent Pack 12X15 ☐

Shipper's Signature X [signature] 11/4/92

SAN-A

International Shipments: Free Domicile ☐ | Commodity Code

Third Party Account Number mandatory for Third Party Billing: E

International Customs Value | International Insurance

Base Charge | Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO $

Terms and Conditions on Back

CONSIGNEE — PACKAGE COPY — 4

FORM NO. 60001-46

[handwritten initials] 12-2-94

MAXWELL
S-CUBED Division

Lot No. 3410

Sample Log-In Sheet
Revision No.: 0

Date Received: 11-5-1992 Date Sampled: 11-2-1992 Client Code: WIIC DC No._____

Time Received: 14:00 Data Due Date: 11-25-1992 Report Mail Date: 12-4-1992

Received by (Sig): Elaine Walker Custody Seals Present/Intact (Y) N Reporting Level: FULL CLP

Airbill No. 251 9006589 Chain of Custody Present/Intact (Y) N Turnaround Required: 30 DAY

Charge No. 32359-51 Client Forms Present (Y) N Quality Control Reqd'd: Level 3 (RCRA)

Case No./Project Code: ~~92-231~~ 321 SDG No.: 3410

S-Cubed Sample No.	Sample Identification	Samp. Type	No. Cont.	Samp Stor.	Samp Cond	%M	ANIONS	CRVI	FURNCLP	HERBEXT	HGCLP	ICPCLP	NO2/NO3	OCPOLM	OPPS140	SPH	SVOAOLM	TRPH	VOAOLM	All Info Agree	Notes
3410-01	B07KP6	SOIL	1/1/3	R9/GC/WA		X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Container Types

Water _____

_____

Soil _____

_____

Soil = Soil/Sediment/Sludge
Water = Aqueous
NAL = Non-Aqueous Liquid
NSS = Non-Soil Solid

Water MS,MSD _____

Soil MS,MSD _____

SDG Complete (Y) N

Review JD 11/6

J. Amer 11-3-92

SC-03, Rev 8/92

1A

EPA SAMPLE NO.

B07KP6

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 5.00 (g/ml) G Lab File ID: A1110061
Level: (low/med) LOW Date Received: 11/05/92
%Moisture: not dec. 5.67 Date Analyzed: 11/10/92
GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.00
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	6	JB
67-64-1	Acetone	7	JB
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethyl Benzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818, Alexandria, Virginia 22313 703/557-2490

Sample Number
BCJKPC

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.		NO TIC'S FOUND	VOA		
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: DN12061
Level: (low/med) LOW Date Received: 11/05/92
%Moisture: 5.67 decanted: (Y/N) N Date Extracted: 11/09/92
Concentrated Extract Volume: 2000.00 (uL) Date Analyzed: 11/12/92
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.95

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
108-95-2	Phenol	700	U
111-44-4	bis(2-Chloroethyl)ether	700	U
95-57-8	2-Chlorophenol	700	U
541-73-1	1,3-Dichlorobenzene	700	U
106-46-7	1,4-Dichlorobenzene	700	U
95-50-1	1,2-Dichlorobenzene	700	U
95-48-7	2-Methylphenol	700	U
108-60-1	2,2'-oxybis(1-Chloropropane)	700	U
106-44-5	4-Methylphenol	700	U
621-64-7	N-Nitroso-di-n-propylamine	700	U
67-72-1	Hexachloroethane	700	U
98-95-3	Nitrobenzene	700	U
78-59-1	Isophorone	700	U
88-75-5	2-Nitrophenol	700	U
105-67-9	2,4-Dimethylphenol	700	U
111-91-1	bis(2-Chloroethoxy)methane	700	U
120-83-2	2,4-Dichlorophenol	700	U
120-82-1	1,2,4-Trichlorobenzene	700	U
91-20-3	Naphthalene	700	U
106-47-8	4-Chloroaniline	700	U
87-68-3	Hexachlorobutadiene	700	U
59-50-7	4-Chloro-3-methylphenol	700	U
91-57-6	2-Methylnaphthalene	700	U
77-47-4	Hexachlorocyclopentadiene	700	U
88-06-2	2,4,6-Trichlorophenol	700	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	700	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	700	U
208-96-8	Acenaphthylene	700	U
606-20-2	2,6-Dinitrotoluene	700	U
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	700	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: DN12061
Level: (low/med) LOW Date Received: 11/05/92
%Moisture: 5.67 decanted: (Y/N) N Date Extracted: 11/09/92
Concentrated Extract Volume: 2000.00 (uL) Date Analyzed: 11/12/92
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.95

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	U
132-64-9	Dibenzofuran	700	U
121-14-2	2,4-Dinitrotoluene	700	U
84-66-2	Diethylphthalate	700	U
7005-72-3	4-Chlorophenyl-phenyl ether	700	U
86-73-7	Fluorene	700	U
100-01-6	4-Nitroaniline	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	U
86-30-6	N-Nitrosodiphenylamine (1)	700	U
101-55-3	4-Bromophenyl-phenylether	700	U
118-74-1	Hexachlorobenzene	700	U
87-86-5	Pentachlorophenol	1700	U
85-01-8	Phenanthrene	700	U
120-12-7	Anthracene	700	U
86-74-8	Carbazole	700	U
84-74-2	Di-n-butylphthalate	260	J
206-44-0	Fluoranthene	700	U
129-00-0	Pyrene	700	U
85-68-7	Butylbenzylphthalate	700	U
91-94-1	3,3'-Dichlorobenzidine	700	U
56-55-3	Benzo(a)anthracene	700	U
218-01-9	Chrysene	700	U
117-81-7	Bis(2-Ethylhexyl)phthalate	700	U
117-84-0	Di-n-octylphthalate	700	U
205-99-2	Benzo(b)fluoranthene	700	U
207-08-9	Benzo(k)fluoranthene	700	U
50-32-8	Benzo(a)pyrene	700	U
193-39-5	Indeno(1,2,3-cd)pyrene	700	U
53-70-3	Dibenz(a,h)anthracene	700	U
191-24-2	Benzo(g,h,i)perylene	700	U

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
BC7KPG

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	00123-42-2	2-PENTANONE 4-HYDROXY-4-METH	BNA	49	3200 JBN
2.	50-29-3	DDT	↓	1293	310 JN
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

010

1D

EPA SAMPLE NO.

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: E1130-2DB608031
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/92
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 12/01/92
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	1.80	U
319-85-7	beta-BHC	1.80	U
319-86-8	delta-BHC	1.80	U
58-89-9	gamma-BHC (Lindane)	1.80	U
76-44-8	Heptachlor	1.80	U
309-00-2	Aldrin	1.80	U
1024-57-3	Heptachlor epoxide	1.80	U
959-98-8	Endosulfan I	1.80	U
60-57-1	Dieldrin	3.50	U
72-55-9	4,4'-DDE	262	EC
72-20-8	Endrin	3.50	U
33213-65-9	Endosulfan II	3.50	U
72-54-8	4,4'-DDD	3.50	U
1031-07-8	Endosulfan sulfate	3.50	U
50-29-3	4,4'-DDT	341	EC
72-43-5	Methoxychlor	18.0	U
53494-70-5	Endrin ketone	3.50	U
7421-36-3	Endrin Aldehyde	3.50	U
5103-71-9	alpha-Chlordane	1.80	U
5103-74-2	gamma-Chlordane	1.80	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35.0	U
11104-28-2	Aroclor-1221	71.0	U
11141-16-5	Aroclor-1232	35.0	U
53469-21-9	Aroclor-1242	35.0	U
12672-29-6	Aroclor-1248	35.0	U
11097-69-1	Aroclor-1254	35.0	U
11096-82-5	Aroclor-1260	35.0	U

1D

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP6DL

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01DL
Sample wt/vol: 30 (g/ml) G Lab File ID: E1130-2DB608065
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/92
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 12/04/92
Injection Volume: 1.00 (uL) Dilution Factor: 10.00
GPC Cleanup: (Y/N) Y pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	18.0	U
319-85-7	beta-BHC	18.0	U
319-86-8	delta-BHC	18.0	U
58-89-9	gamma-BHC (Lindane)	18.0	U
76-44-8	Heptachlor	18.0	U
309-00-2	Aldrin	18.0	U
1024-57-3	Heptachlor epoxide	18.0	U
959-98-8	Endosulfan I	18.0	U
60-57-1	Dieldrin	35.0	U
72-55-9	4,4'-DDE	264	DC
72-20-8	Endrin	35.0	U
33213-65-9	Endosulfan II	35.0	U
72-54-8	4,4'-DDD	35.0	U
1031-07-8	Endosulfan sulfate	35.0	U
50-29-3	4,4'-DDT	329	DC
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	35.0	U
7421-36-3	Endrin Aldehyde	35.0	U
5103-71-9	alpha-Chlordane	18.0	U
5103-74-2	gamma-Chlordane	18.0	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	350	U
11104-28-2	Aroclor-1221	710	U
11141-16-5	Aroclor-1232	350	U
53469-21-9	Aroclor-1242	350	U
12672-29-6	Aroclor-1248	350	U
11097-69-1	Aroclor-1254	350	U
11096-82-5	Aroclor-1260	350	U

1D

EPA SAMPLE NO.

HERBICIDE ORGANICS ANALYSIS DATA SHEET

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 5 (g/ml) G Lab File ID: H1120-4DB1701077
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/16/92
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/22/92
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
94-75-7	2,4-D	105	U
94-82-6	2,4-DB	52.6	U
93-76-5	2,4,5-T	26.3	U
93-72-1	2,4,5-TP	26.3	U
88-85-7	Dinoseb	26.3	U
120-36-5	Dichlorprop	105	U
1918-00-9	Dicamba	52.6	U
75-99-0	Dalapon	52.6	U
93-65-2	MCPP	26300	U
94-74-0	MCPA	26300	U

1D

EPA SAMPLE NO.

B07KP6

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: A1124-6DB1A021
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/92
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/25/92
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
115-90-2	Fensulfothion	53.0	U
13194-48-4	Ethoprop	21.2	U
150-50-5	Merphos	21.2	U
2921-88-2	Chlorpyrifos	21.2	U
298-00-0	Parathion-methyl	10.6	U
298-02-2	Phorate	10.6	U
298-04-4	Disulfoton	10.6	U
299-84-3	Ronnel	21.2	U
300-76-5	Naled	21.2	U
327-98-0	Trichloronate	21.2	U
333-41-5	Diazinon	21.2	U
34843-46-4	Tokuthion(Prothiofos)	10.6	U
35400-43-2	Bolstar(Sulprophos)	10.6	U
55-38-9	Fenthion	10.6	U
56-72-4	Coumaphos	53.0	U
62-73-7	Dichlorvos	10.6	U
7786-34-7	Mevinphos	42.4	U
8065-48-3	Dematon-O	42.4	U
8065-48-3A	Dematon-P	42.4	U
86-50-0	Azinphos methyl	53.0	U
961-11-5	Stirophos(Tetrachlorvinphos)	53.0	U

Analyte:	TRPH	Smpl Aliquot:	0.020 (Kg or L
Method:	418.1	Final Volume:	0.1 L
Technique:	IR Spec.		
DATE:	11/10/92	Concs:	p.p.m.
Analyst:	CF	Reagent #1	20
Instr:	P&E IR Spec.	#2	40
Case:		#3	80
Lot(s):	3392,97,99,3409	#4	160
		#5	300
Standards		#6	
Source:	S-CUBED/EL4240		
Corr. Coef.	0.99990		

Detection Limit 20mg/kg

Std.	Abs	Conc
Blank	0	0
#1	0.03	20
#2	0.062	40
#3	0.126	80
#4	0.245	160
#5	0.46	300
#6		

S-Cubed Sample ID	Client Sample ID	Abs.	Conc. (ug/ml)	Dil. Factor	SAMPLE Conc.	Detection Limit	% Mois.	(mg/kg) Final CONC.
EBS1109A		0	0.0000	1	0.0000	20		0
LCSS1109A		0.205	133.2923	1	666.4616	20		666
EBS1106B		0	0.0000	1	0.0000	20		0
LCSS1106B		0.203	131.9919	1	659.9596	20		660
3397-04RX	S1454070	0	0.0000	1	0.0000	20	5.9	0
3399-04RX	22A10-4	0	0.0000	1	0.0000	20	15.1	0
3392-01RX	S1459180	0.154	100.1318	1	500.6590	20	17.29	605
3392-01REPR	S1459180REP	0.169	109.8849	1	549.4245	20	17.29	664
3409-01	S1454260	0.081	52.6667	1	263.3336	20	14.5	308
3409-02	S1454578	0.109	70.8725	1	354.3625	20	14.9	416
3409-03	S1454261	0	0.0000	1	0.0000	20	8.33	0
3409-04	S1454264	0	0.0000	1	0.0000	20	10.04	0
3409-05	S1454257	0.231	150.1977	5	3754.9424	100	10.3	4186
3409-06	S1454258	0	0.0000	1	0.0000	20	6.94	0
3409-07	S1454449	0.101	65.6709	1	328.3543	20	9.87	364
3409-08	S1454255	0	0.0000	1	0.0000	20	9.7	0
3409-09	S1454076	0	0.0000	1	0.0000	20	13.31	0
3409-10	S1454068	0	0.0000	1	0.0000	20	6.41	0
3410-01	B07KP6	0	0.0000	1	0.0000	20	5.67	0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3410-01

Lab Name: S_CUBED Contract: 32359-51

Lab Code: S3 Case No.: 92231 SAS No.: SDG No.: 3410

Matrix (soil/water): SOIL Lab Sample ID: 3410-01

Level (low/med): LOW Date Received: 11/05/92

% Solids: 94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13400			P
7440-36-0	Antimony	12.7	U		P
7440-38-2	Arsenic	10.6	B		F
7440-39-3	Barium	157			P
7440-41-7	Beryllium	0.64	B		P
7440-43-9	Cadmium	0.64	B		P
7440-70-2	Calcium	16100			P
7440-47-3	Chromium	21.0			P
7440-48-4	Cobalt	14.6			P
7440-50-8	Copper	27.1			P
7439-89-6	Iron	27800			P
7439-92-1	Lead	29.9			F
7439-95-4	Magnesium	7700			P
7439-96-5	Manganese	571			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	20.8			P
7440-09-7	Potassium	2330			P
7782-49-2	Selenium	6.4	U		F
7440-22-4	Silver	7.0			P
7440-23-5	Sodium	539	U		P
7440-28-0	Thallium	6.4	U		F
7440-62-2	Vanadium	52.2			P
7440-66-6	Zinc	96.1			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

BO7KP6

FORM I - IN

7/88

ANIONS ANALYSIS

LABORATORY:	S-CUBED	DATA REVIEWER:	ON 12/02/92
CLIENT:	WHC	PROJECT REVIEWER:	
PROJECT:	92-359	CHARGE #:	32359-51
LOT #:	3410	DATE SAMPLED:	11-02-92
FILE #:	ANI3410S	DATE RECEIVED:	11-05-92
DISK #:	ANI1123	PREP DATE:	11-09-92
METHOD NO.:	300.0	DATE ANALYZED:	11-13-92
UNIT:	MG/KG	SAMPLE TYPE:	SOIL

LAB ID	F	Cl	NO2	Br	NO3	PO4	SO4		
3410-01	1.96	10.9	~~<0.1~~ <0.2	~~<0.1~~ <0.5	13.0	1.43	~~270~~ 311		
~~3410-01D~~		~~11.2~~					~~311~~		

SO_4 result was required a 10x dilution due to high concentration level. All other anions were reported on straight analysis run. All QC requirement were met. The sample was leached (20 gm into 100 mL) into DI type II water prior to analysis.

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-231
Sampling Date: 11/02/92

Analyte: CRVI

Analyst: EA
Review : [illegible] 11/19
Receipt. Date: 11/05/92

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3410-01	S	A	B07KP6	< MDL	0.133

Method Detection Limit: 5.000 ug/L
Preparation Method: SW7196
Analytical Method: SW7196
Preparation Date: 11/09/92
Analysis Date: 11/11/92

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All q c requirement were excellent. The sample was required 1 to 5 dilution prior to analysis due to matrix interferences. The sample of 20 gm was leached into 100 mL DI type II H_2O prior to analysis.

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-231
Sampling Date: 11/02/92

Analyst: EA
Review : [illegible] 11/19
Receipt. Date: 11/05/92

Analyte: NO2/NO3

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration as-N	MDL
3410-01	S	A	BO7KP6	3.34	0.530

Method Detection Limit: 0.100 mg/L
Preparation Method: 353.3
Analytical Method: 353.3
Preparation Date: 11/09/92
Analysis Date: 11/11/92

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All QC requirement were within the control limit
The sample of 20 gm was leached into 100 mL DI type II H_2O prior to analysis.

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

June 11, 1993

Our ref: 893-1458
WHC/O/378

Westinghouse Hanford Company
Hanford Analytical Services Management
345 Hills, MSIN H4-29
Richland, Washington 99352

ATTENTION: Ms. Brianna Colley

RE: NORTH SLOPE ERA DATA VALIDATION, TASK ORDER G-93-58, TRANSMITTAL OF DATA VALIDATION PACKAGES

Dear Ms. Colley:

Enclosed is one analytical data package including associated data validation documentation for a North Slope ERA sample analyzed by the S-Cubed laboratory for volatile, semivolatile, chlorinated pesticide/PCB, chlorinated herbicide and phosphate pesticide organic compounds, metals, anions, and total petroleum hydrocarbons.

The data package included in this shipment is 3410-SCU-080. The validation documentation is located at the front of the data package folder.

Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Project Manager

Donald M. Caldwell
Project Director

Enclosures

cc: Bob Henckel, WHC

6-14-93 PKR

MEMORANDUM

TO: North Slope ERA Project QA Record June 10, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Volatile Organic Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for volatile organic analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 8140. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met with the exception of the evaluation of matrix spike and matrix spike duplicate samples, which the laboratory did not analyze.

Accuracy. Goals for accuracy were not evaluated because the laboratory did not analyze a matrix spike and matrix spike duplicate. The samples were not qualified based on this anomaly.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of 33 determinations reported. Out of the 33 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

The were no major deficiencies identified during validation.

MINOR DEFICIENCIES

Blanks:

Methylene chloride and acetone were detected in the method blank at 3 ug/kg and 5 ug/kg, respectively. Therefore, the associated sample results which are less than five times the respective blank concentration have been qualified as undetected (U).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: CJ	DATE: 6/4/93	PAGE 1 OF 1
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene Chloride	U	B07KP6	Blank Contam.
Acetone	U	B07KP6	Blank Contam.

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 5.00 (g/ml) G Lab File ID: A1110061
Level: (low/med) LOW Date Received: 11/05/92
%Moisture: not dec. 5.67 Date Analyzed: 11/10/92
GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.00
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11 ~~6~~	~~JB~~ U
67-64-1	Acetone	11 ~~7~~	~~JB~~ U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethyl Benzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

Q

U

U

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
BCJKP6

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TIC'S FOUND	VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

00:

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: North Slope ERA	REVIEWER: G	DATE: 6/4/93
LABORATORY: S-Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: soil B07KP6		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		
Data Summary		✓	✓	
Chain-of-Custody		✓		
QC Summary				
Surrogate report		✓		
MS/MSD report		✓	✓	
Blank summary report		✓		
GC/MS tuning report		✓		
Internal standard summary report		✓		
Sample Data				
Sample reports		✓		
TIC reports for each sample		✓		
RIC reports for all samples		✓		
Raw and corrected spectra for all detected results		✓		
Raw and corrected library search data for all reported TIC		✓		
Quantitation and calculation data for all TIC		✓		
Standards Data				
Initial calibration report		✓		
RIC and quantitation reports for initial calibration		✓		
Continuing calibration reports		✓		
RIC and quantitation reports for cont. calibrations		✓		
Internal standard summary report		✓		
Raw QC Data				
Tuning report, spectra and mass lists		✓		
Blank analysis reports		✓		
TIC reports for all blanks		✓		
RIC and quantitation reports for blanks		✓		
Raw and corrected spectra for all detected results in blanks		✓		
Raw and corrected library search data for all reported TIC				✓

Data Package Item	Present?:	Yes	No	N/A
Quantitation and calculation data for all TIC		—	✓	—
MS/MSD report forms		—	✓	—
RIC and quantitation reports for MS/MSD		—	✓	—
Additional Data				
Moisture/% solids data sheets		—	✓	—
Reduction formulae		—	✓	—
Instrument time logs		—	✓	—
Chemist notebook pages		—	✓	—
Sample preparation sheets		—	✓	—

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? (Yes) No N/A

Do all tunes on all instruments meet the tuning criteria? (Yes) No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No (N/A)

Has the laboratory made any calculation or transciption errors? Yes (No) N/A

Have the proper significant figures been reported? (Yes) No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? (Yes) No N/A

Are all RSD values $\leq 30\%$ (2/88 SOW)? Yes No (N/A)

Are all RRF values ≥ 0.05 (2/88 SOW)? Yes No (N/A)

Are all applicable RSD values ≤20.5% (3/90 SOW)?	(Yes)	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	(N/A)
Are all applicable RRF values within SOW limits (3/90 SOW)?	(Yes)	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	(Yes)	No	~~N/A~~

ej 6/14/93

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	(Yes)	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	(N/A)
Are all %D values ≤25% (2/88 or 3/90 SOW)?	(Yes)	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	~~N/A~~
Are all RRF values within SOW limits (3/90 SOW)?	(Yes)	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	(Yes)	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	(Yes)	No	N/A
Are TCL compounds present in the laboratory blanks?	(Yes)	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No (N/A)

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes (No) N/A

Are any surrogate recoveries $< 10\%$? Yes (No) N/A

Are any method blank surrogate recoveries out of specification? Yes (No) N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but $> 10\%$. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

See comment 1

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes (No) N/A

Are MS/MSD recoveries within specification? Yes No (N/A)

Are there any calculation errors? Yes No (N/A)

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No (N/A)

Are there any calculation errors? Yes No (N/A)

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes (No) N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes (No) N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

see comment 2

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	(N/A)
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	(N/A)
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	(N/A)
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	(N/A)
Are molecular ions present in the reference specrum present in the sample spectrum?	Yes	No	(N/A)

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	(Yes)	No	N/A
Are results and quantitation limits calculated properly?	(Yes)	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	(Yes)	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	(Yes)	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	(N/A)

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. A matrix spike / matrix spike duplicate was not performed for this SDG. No qualification of the data will be made because of this.

2. The detected compounds have been qualified as U because of blank contamination.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3410	REVIEWER: C Jansen	DATE: 6/4/93	PAGE 1 OF 1
COMMENTS: Volatiles			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP6	VOA	11/2/92	—	10/10/92	—	8	none

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 3410	REVIEWER: C. Jensen			DATE: 6/4/93				PAGE 1 OF 1	
COMMENTS: Volatiles									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBS1110A	Methylene Chloride	3	J		ug/Kg		30	B07KP6	U
	Acetone	5	J		ug/Kg		50	B07KP6	U
	2-Butanone	2	J		ug/Kg		20	none	none

MEMORANDUM

TO: North Slope ERA Project QA Record June 10, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Total Recoverable Petroleum Hydrocarbon Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for total recoverable petroleum hydrocarbon (TRPH) analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 418.1. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of one determination reported. Out of the one determination reported, it was deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified requiring rejection of the data.

MINOR DEFICIENCIES

There were no minor deficiencies identified requiring rejection of the data.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: CJ	DATE: 10/9/93	PAGE 1 OF 1
COMMENTS: TRPH			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

B-7

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

Analyte:	TRPH	Smpl Aliquot:	0.020 (Kg or L
Method:	418.1	Final Volume:	0.1 L
Technique:	IR Spec.		
DATE:	11/10/92	Concs:	p.p.m.
Analyst:	CF	Reagent #1	20
Instr:	P&E IR Spec.	#2	40
Case:		#3	80
Lot(s):	3392,97,99,3409	#4	160
		#5	300
Standards		#6	
Source:	S-CUBED/EL4240		
Corr. Coef.	0.99990		

Detection Limit 20mg/kg

Std.	Abs	Conc
Blank	0	0
#1	0.03	20
#2	0.062	40
#3	0.126	80
#4	0.245	160
#5	0.46	300
#6		

S-Cubed Sample ID	Client Sample ID	Abs.	Conc. (ug/ml)	Dil. Factor	SAMPLE Conc.	Detection Limit	% Mois.	(mg/kg) Final CONC.
EBS1109A		0	0.0000	1	0.0000	20		0
LCSS1109A		0.205	133.2923	1	666.4616	20		666
EBS1106B		0	0.0000	1	0.0000	20		0
LCSS1106B		0.203	131.9919	1	659.9596	20		660
3397-04RX	S1454070	0	0.0000	1	0.0000	20	5.9	0
3399-04RX	22A10-4	0	0.0000	1	0.0000	20	15.1	0
3392-01RX	S1459180	0.154	100.1318	1	500.6590	20	17.29	605
3392-01REPR	S1459180REP	0.169	109.8849	1	549.4245	20	17.29	664
3409-01	S1454260	0.081	52.6667	1	263.3336	20	14.5	308
3409-02	S1454578	0.109	70.8725	1	354.3625	20	14.9	416
3409-03	S1454261	0	0.0000	1	0.0000	20	8.33	0
3409-04	S1454264	0	0.0000	1	0.0000	20	10.04	0
3409-05	S1454257	0.231	150.1977	5	3754.9424	100	10.3	4186
3409-06	S1454258	0	0.0000	1	0.0000	20	6.94	0
3409-07	S1454449	0.101	65.6709	1	328.3543	20	9.87	364
3409-08	S1454255	0	0.0000	1	0.0000	20	9.7	0
3409-09	S1454076	0	0.0000	1	0.0000	20	13.31	0
3409-10	S1454068	0	0.0000	1	0.0000	20	6.41	0
3410-01	B07KP6	0	0.0000	1	0.0000	20	5.67	0

10/9/92

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

TRPH 9/6/93

~~VOLATILE~~ ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: Hanford Storage ERA	REVIEWER: S	DATE: 10/9/93
LABORATORY: S-Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soil BD7KD6		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		
Data Summary			✓	
Chain-of-Custody		✓		
QC Summary				
Surrogate report	9/6/93	✓		✓
MS/MSD report				✓
Blank summary report		✓		
GC/MS tuning report				✓
Internal standard summary report				✓
Sample Data				
Sample reports		✓		
TIC reports for each sample				✓
RIC reports for all samples				✓
Raw and corrected spectra for all detected results				✓
Raw and corrected library search data for all reported TIC				✓
Quantitation and calculation data for all TIC				✓
Standards Data				
Initial calibration report		✓		
RIC and quantitation reports for initial calibration				✓
Continuing calibration reports				✓
RIC and quantitation reports for cont. calibrations				✓
Internal standard summary report				✓
Raw QC Data				
Tuning report, spectra and mass lists				✓
Blank analysis reports		✓		
TIC reports for all blanks				✓
RIC and quantitation reports for blanks				✓
Raw and corrected spectra for all detected results in blanks				✓
Raw and corrected library search data for all reported TIC				✓

Data Package Item	Present?:	Yes	No	N/A
Quantitation and calculation data for all TIC				✓
MS/MSD report forms	See comment 1			✓
RIC and quantitation reports for MS/MSD				✓
Additional Data				
Moisture/% solids data sheets		✓		
Reduction formulae			✓	
Instrument time logs			✓	
Chemist notebook pages			✓	
Sample preparation sheets		✓		

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period?	Yes	No	(N/A)
Do all tunes on all instruments meet the tuning criteria?	Yes	No	(N/A)
Do all tunes on all instruments meet the expanded criteria?	Yes	No	(N/A)
Has the laboratory made any calculation or transciption errors?	Yes	~~No~~ 5/19/93	(N/A)
Have the proper significant figures been reported?	Yes	No	(N/A)

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	(Yes)	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	(N/A)
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	(N/A)

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	(N/A)
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	(N/A)
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	(N/A)
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	(N/A)

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	(N/A)
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	(N/A)
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	(N/A)
Are all %D values ≤40% (3/90 SOW)?	Yes	No	(N/A)
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	(N/A)
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	(N/A)

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	(Yes)	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	(No)	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No (N/A)

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No (N/A)

Are any surrogate recoveries < 10%? Yes No (N/A)

Are any method blank surrogate recoveries out of specification? Yes No (N/A)

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an ~~MS/MSD~~ LCS analysis been conducted per matrix in the sample group? (Yes) No N/A

Are ~~MS/MSD~~ LCS recoveries within specification? (Yes) No N/A

Are there any calculation errors? Yes (No) N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No (N/A)

Are there any calculation errors? Yes No (N/A)

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No (N/A)

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No (N/A)

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	(N/A)
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	(N/A)
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	(N/A)
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	(N/A)
Are molecular ions present in the reference specrum present in the sample spectrum?	Yes	No	(N/A)

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	(N/A)
Are results and quantitation limits calculated properly?	(Yes)	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	(Yes)	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	(N/A)
Has the laboratory properly identified and coded all TIC?	Yes	No	(N/A)

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. The laboratory analyzed an LCS limited QC (on 1115/1152), which will be required for QC recovery.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3410	REVIEWER: L. Huston	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS: TRPH			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP6	TRPH	11/2/92	11/9/92	11/10/92	7	1	none

MEMORANDUM

TO: North Slope ERA Project QA Record June 10, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Semivolatile Organics Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for semivolatile organics analysis. The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met with the exception of the evaluation of matrix spike (MS) and matrix spike duplicate (MSD) samples, which were not analyzed by the laboratory.

Accuracy. Goals for accuracy were met with the exception of the evaluation of MS and MSD samples, which were not analyzed by the laboratory.

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary. The laboratory performed an unknown search and identified DDT in sample B07KP4 at a concentration of 310 ug/kg and confirmed this in the pesticides/PCB analysis at a concentration of 341 ug/kg.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of 64 determinations reported. Out of the 64 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

A tentatively identified compound (TIC), an aldol condensation product, 4-hydroxy-4-methyl-2-pentanone was detected in sample B07KP6 at a concentration of 3200 ug/kg and was qualified as unusable (R).

MINOR DEFICIENCIES

The laboratory indicated in the case narrative that a matrix spike (MS) and matrix spike duplicate (MSD) were analyzed for this sample set, however, the data and forms were not submitted with the data package. Therefore, the data was not evaluated based on precision and accuracy using the MS/MSD results.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: CJ	DATE: 6/8/93	PAGE 1 OF 1
COMMENTS: Semivolatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4-hydroxy-4-methyl 2-Pentanone	R	B07KP1e	TIC is an aldol condensation product.

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1B

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: DN12061
Level: (low/med) LOW Date Received: 11/05/92
%Moisture: 5.67 decanted: (Y/N) N Date Extracted: 11/09/92
Concentrated Extract Volume: 2000.00 (uL) Date Analyzed: 11/12/92
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.95

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
108-95-2	Phenol	700	U
111-44-4	bis(2-Chloroethyl)ether	700	U
95-57-8	2-Chlorophenol	700	U
541-73-1	1,3-Dichlorobenzene	700	U
106-46-7	1,4-Dichlorobenzene	700	U
95-50-1	1,2-Dichlorobenzene	700	U
95-48-7	2-Methylphenol	700	U
108-60-1	2,2'-oxybis(1-Chloropropane)	700	U
106-44-5	4-Methylphenol	700	U
621-64-7	N-Nitroso-di-n-propylamine	700	U
67-72-1	Hexachloroethane	700	U
98-95-3	Nitrobenzene	700	U
78-59-1	Isophorone	700	U
88-75-5	2-Nitrophenol	700	U
105-67-9	2,4-Dimethylphenol	700	U
111-91-1	bis(2-Chloroethoxy)methane	700	U
120-83-2	2,4-Dichlorophenol	700	U
120-82-1	1,2,4-Trichlorobenzene	700	U
91-20-3	Naphthalene	700	U
106-47-8	4-Chloroaniline	700	U
87-68-3	Hexachlorobutadiene	700	U
59-50-7	4-Chloro-3-methylphenol	700	U
91-57-6	2-Methylnaphthalene	700	U
77-47-4	Hexachlorocyclopentadiene	700	U
88-06-2	2,4,6-Trichlorophenol	700	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	700	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	700	U
208-96-8	Acenaphthylene	700	U
606-20-2	2,6-Dinitrotoluene	700	U
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	700	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: DN12061
Level: (low/med) LOW Date Received: 11/05/92
%Moisture: 5.67 decanted: (Y/N) N Date Extracted: 11/09/92
Concentrated Extract Volume:2000.00 (uL) Date Analyzed: 11/12/92
Injection Volume: 1.00 (u/L) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.95

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	U
132-64-9	Dibenzofuran	700	U
121-14-2	2,4-Dinitrotoluene	700	U
84-66-2	Diethylphthalate	700	U
7005-72-3	4-Chlorophenyl-phenyl ether	700	U
86-73-7	Fluorene	700	U
100-01-6	4-Nitroaniline	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	U
86-30-6	N-Nitrosodiphenylamine (1)	700	U
101-55-3	4-Bromophenyl-phenylether	700	U
118-74-1	Hexachlorobenzene	700	U
87-86-5	Pentachlorophenol	1700	U
85-01-8	Phenanthrene	700	U
120-12-7	Anthracene	700	U
86-74-8	Carbazole	700	U
84-74-2	Di-n-butylphthalate	260	J
206-44-0	Fluoranthene	700	U
129-00-0	Pyrene	700	U
85-68-7	Butylbenzylphthalate	700	U
91-94-1	3,3'-Dichlorobenzidine	700	U
56-55-3	Benzo(a)anthracene	700	U
218-01-9	Chrysene	700	U
117-81-7	Bis(2-Ethylhexyl)phthalate	700	U
117-84-0	Di-n-octylphthalate	700	U
205-99-2	Benzo(b)fluoranthene	700	U
207-08-9	Benzo(k)fluoranthene	700	U
50-32-8	Benzo(a)pyrene	700	U
193-39-5	Indeno(1,2,3-cd)pyrene	700	U
53-70-3	Dibenz(a,h)anthracene	700	U
191-24-2	Benzo(g,h,i)perylene	700	U

CJ 6/8/93

Environmental Protection Agency. CLP Sample Management Office.
P. O. Box 818. Alexandria, Virginia 22313 703/557-2490

Sample Number
BC7KPG

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	00123-42-2	2-PENTANONE 4-HYDROXY-4-METH	BNA	49	3200 JBN
2.	50-29-3	DDT	↓	1293	310 JN
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
25.					
27.					
28.					
29.					
30.					

010

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/7/93
LABORATORY: S-Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soil B07KP6		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		
Data Summary		✓	~~✓~~ 6/7/93	
Chain-of-Custody		✓	—	—
QC Summary				
Surrogate report		✓		
MS/MSD report		—	✓ See comment 1	—
Blank summary report		✓	—	—
GC/MS tuning report		✓	—	—
Internal standard summary report		✓	—	—
Sample Data				
Sample reports		✓	—	—
TIC reports for each sample		✓	—	—
RIC reports for all samples		✓	—	—
Raw and corrected spectra for all detected results		✓	—	—
Raw and corrected library search data for all reported TIC		✓	—	—
Quantitation and calculation data for all TIC		✓	—	—
Standards Data				
Initial calibration report		✓		
RIC and quantitation reports for initial calibration		✓	—	—
Continuing calibration reports		✓	—	—
RIC and quantitation reports for cont. calibrations		✓	—	—
Internal standard summary report		✓	—	—
Raw QC Data				
Tuning report, spectra and mass lists		✓	—	—
Blank analysis reports		✓	—	—
TIC reports for all blanks		✓	—	—
RIC and quantitation reports for blanks		✓	—	—
Raw and corrected spectra for all detected results in blanks		✓	—	—
Raw and corrected library search data for all reported TIC		✓	—	—
Quantitation and calculation data for all TIC		✓	—	—
MS/MSD report forms		—	✓	—

Data Package Item	Present?:	Yes	No	N/A
RIC and quantitation reports for MS/MSD		—	✓	—
Additional Data				
Moisture/% solids data sheets		—	✓	—
Reduction formulae		—	✓	—
Instrument time logs		—	✓	—
Chemist notebook pages		—	✓	—
Sample preparation sheets		✓	—	—

2. HOLDING TIMES

Were all samples extracted within holding time?	(Yes)	No	N/A
Were all samples analyzed within holding time?	(Yes)	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	(Yes)	No	N/A
Do all tunes on all instruments meet the tuning criteria?	(Yes)	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	(N/A)
Has the laboratory made any calculation or transciption errors?	Yes	(No)	N/A
Have the proper significant figures been reported?	(Yes)	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	(Yes)	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	(N/A)
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	(N/A)
Are all applicable RSD values ≤20.5% (3/90 SOW)?	(Yes)	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	(N/A)

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results <5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No (N/A)

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes (No) N/A

Are any surrogate recoveries < 10%? Yes (No) N/A

Are any method blank surrogate recoveries out of specification? Yes (No) N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

See comment 1

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes (No) N/A

Are MS/MSD recoveries within specification? Yes No (N/A)

Are there any calculation errors? Yes No (N/A)

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

See Comment 1

Are all RPD values within specification? Yes No (N/A)

Are there any calculation errors? Yes No (N/A)

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes (No) N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes (No) N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	(N/A) See comment 2
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	(Yes)	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	(Yes)	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	(Yes)	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	(Yes)	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	(Yes)	No	N/A
Are results and quantitation limits calculated properly?	(Yes)	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	(Yes)	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	(Yes)	No	N/A
Has the laboratory properly identified and coded all TIC?	(Yes)	No	N/A See comment 3.

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. The case narrative says that a matrix spiking solution problem is present, however the laboratory did not submit MS/MSD results or forms with this data package. No data qualification will be done as a result of the missing MS/MSD data.

2. Di-n-butyl phthalate was detected in ~~the~~ sample ~~B0KD~~ but the retention times were not listed out. The spectra was reviewed and identification of the compound is correct.

3. DDT was identified in the TIC search. The compound was also detected in the Pest/PCB analysis.

TIC concentration = 310 ug/kg Pest/PCB concentration = 341 ug/kg

4-hydroxy-4-methyl-2-pentanone was detected in the sample at 3200 ug/kg, which is an aldol condensation product. The result is qualified as unusable (R)

HOLDING TIME SUMMARY - FORM B-I

SDG: 3410	REVIEWER: C Jensen	DATE: 6/8/93	PAGE 1 OF 1
COMMENTS: Semivolatiles			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP6	SVOA	11/2/92	11/9/92	11/12/92	7	3	none

MEMORANDUM

TO: North Slope ERA Project QA Record June 11, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organochlorine Pesticide/PCB Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for organochlorine pesticide/PCB analysis. The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision could not be evaluated because a matrix spike (MS) and matrix spike duplicate (MSD) were not analyzed.

Accuracy. A MS and MSD were not analyzed for this sample delivery group (SDG). A laboratory control sample was analyzed and reviewed for percent recovery with all results acceptable.

The surrogate percent recoveries were outside control limits as noted in "Minor Deficiencies".

Sample Result Verification. The retention time for DDD shifted during sample analysis, therefore the laboratory did not report the result. The DDD was confirmed by GCMS and was corrected on the result form for sample B07KP6 and is designated by a "C" qualifier.

The laboratory reported the original concentrations instead of the diluted concentrations for 4,4-DDE and 4,4-DDT which exceeded the calibration range. The results form for sample B07KP6 was corrected to reflect the diluted sample concentrations. The difference between the original and diluted concentrations is small.

Detection Limits. The laboratory performed a cleanup (GPC) on the sample and the reported detection limits did not reflect this. Therefore, the detection limits were multiplied by a factor of two and the result form was corrected.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 28 determinations reported. Out of the 28 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified requiring rejection of the data.

MINOR DEFICIENCIES

Surrogates

All surrogate recoveries for method blank EBS1109 were slightly low (51 to 58%). Since the recoveries for sample B07KP6 were acceptable, no qualification or results was made.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3416	REVIEWER: [illegible]	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS: Organochlorine Pest/PCBs			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
44'DDD	127 C	B07KP6	laboratory did not report
All	U values x 2	B07KP6	GPC cleanup, non-det results x 2
44DDE	272	B07KP6	diluted sample
44DDT	342	B07KP6	U values used

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1D

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: E1130-2DB608031
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/92
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 12/01/92
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) Y pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3.4 ~~1.80~~	U
319-85-7	beta-BHC	3.6 ~~1.80~~	U
319-86-8	delta-BHC	3.4 ~~1.80~~	U
58-89-9	gamma-BHC (Lindane)	3.6 ~~1.80~~	U
76-44-8	Heptachlor	3.6 ~~1.80~~	U
309-00-2	Aldrin	3.6 ~~1.80~~	U
1024-57-3	Heptachlor epoxide	3.4 ~~1.80~~	U
959-98-8	Endosulfan I	3.6 ~~1.80~~	U
60-57-1	Dieldrin	7.0 3.50	U
72-55-9	4,4'-DDE	272 ~~262~~	~~EC~~
72-20-8	Endrin	7.0 ~~3.50~~	U
33213-65-9	Endosulfan II	7.0 ~~3.50~~	U
72-54-8	4,4'-DDD	127 ~~3.50~~	~~U~~ e C
1031-07-8	Endosulfan sulfate	7.0 ~~3.50~~	U
50-29-3	4,4'-DDT	342 ~~341~~	~~EC~~
72-43-5	Methoxychlor	36.0 ~~18.0~~	U
53494-70-5	Endrin ketone	7.0 ~~3.50~~	U
7421-36-3	Endrin Aldehyde	7.0 ~~3.50~~	U
5103-71-9	alpha-Chlordane	3.6 ~~1.80~~	U
5103-74-2	gamma-Chlordane	3.6 ~~1.80~~	U
8001-35-2	Toxaphene	360 ~~180~~	U
12674-11-2	Aroclor-1016	70.0 ~~35.0~~	U
11104-28-2	Aroclor-1221	142 ~~71.0~~	U
11141-16-5	Aroclor-1232	70.0 ~~35.0~~	U
53469-21-9	Aroclor-1242	70.0 ~~35.0~~	U
12672-29-6	Aroclor-1248	70.0 ~~35.0~~	U
11097-69-1	Aroclor-1254	70.0 ~~35.0~~	U
11096-82-5	Aroclor-1260	70.0 ~~35.0~~	U

Q

9/6/9/93

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 7 North Slope FRA	REVIEWER: C. Jensen	DATE: 6/9/93
LABORATORY: S-Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soil B07KP6		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		
Data Summary			✓	
Chain-of-Custody		✓		
QC Summary				
Surrogate report		✓		
MS/MSD report			✓ comment 1	
Blank summary report		✓		
Sample Data				
Sample reports		✓		
Chromatograms		✓		
GC integration reports		✓		
Worksheets			✓	
UV traces from GPC			✓	
GC/MS confirmation spectra		✓		
Standards Data				
Pesticides Evaluation Standards Summary		✓		
Pesticides/PCB Standards Summary		✓		
Pesticides/PCB identification		✓		
Pesticides standard chromatograms		✓		
Raw QC Data				
Blank analysis report forms and chromatograms		✓		
MS/MSD report forms and chromatograms			✓ comment 1	

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% solids data sheets		—	✓	—
Reduction formulae		—	✓	—
Instrument time logs		—	✓	—
Chemist notebook pages		—	✓	—
Sample preparation sheets		✓	—	—

2. HOLDING TIMES

Were all samples extracted within holding time? (Yes) No N/A

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? Yes No (N/A)

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? Yes No (N/A)

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes No (N/A)

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? Yes No (N/A)

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? Yes No (N/A)

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification?	Yes	No	(N/A)

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC $\leq$ 10%?	Yes	No	(N/A)
Have all standards been analyzed within 72 h of any sample?	Yes	No	(N/A)
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	(N/A)
Have all standards been analyzed at the start of each 72-h sequence?	Yes	No	(N/A)
Have evaluation standards A, B, and C been analyzed within 72 h of any sample?	Yes	No	(N/A)
Has the confirmation standard mix been analyzed after every five samples?	Yes	No	(N/A)
Has evaluation standard B analyzed every 10 samples?	Yes	No	(N/A)
Are %D values for initial and subsequent standards $\leq$ 15% for quantitation standards and $\leq$ 20% for confirmation standards?	Yes	No	(N/A)

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Is peak resolution acceptable? (Yes) No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% (Yes) No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? (Yes) No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? (Yes) No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors < ~~10.0%~~ 20% 6/17/93 (< 15.0% for the BHC series, DDT, endrin, and methoxychlor)? (Yes) No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? (Yes) No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? (Yes) No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? (Yes) No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? (Yes) No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? (Yes) No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? (Yes) No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No (N/A)

Has the laboratory analyzed instrument blanks at the required frequency? Yes No (N/A)

Are target compounds present in the blanks? Yes (No) N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No (N/A)

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	(Yes)	No	N/A
Do any samples show nondetects for surrogates?	Yes	(No)	N/A
Are any method blank surrogates out of specification?	(Yes) comment 2	No	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	Yes	(No) comment 1	N/A
Are ~~MS/MSD~~ LCS recoveries within specification?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	(N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No (N/A)

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

SCR comment 3

Do positive results meet the retention time window criteria?	(Yes)	No	N/A
Were positive results analyzed on disimilar columns?	Yes	No	N/A
If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)?	Yes	No	(N/A)
Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)?	Yes	No	(N/A)
Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm?	(Yes)	No	N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly?	(Yes)	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	(Yes)	No	N/A

See comment 4, 5

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. 7115 (MS) was not submitted however an LCS was analyzed with the sample batch and will be reviewed for % recovery.

2. The surrogate recoveries for the blank (EB5110) are all out, but not extremely low - the limits are 60-15 and the recoveries are 51 to 58%. No sample qualification will be made because of this.

3. The retention time for DDD spiked however it was detected both for the GC and confirmed by GC/MS. It was not reported on the results form and will be added. The retention time of DDD is outside the windows

4. The laboratory did a GPC but did not reflect this in the detection limits reported on the results form. The undetected values will be multiplied by 2

5. The laboratory reported the results that had not been diluted. The ~~results~~ form has been changed ~~and~~ to reflect the diluted values. The difference between these two values is small.

HOLDING TIME SUMMARY - FORM B-I

SDG: 3410	REVIEWER: C Jensen	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS: Organochlorine Pest/PCBs			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP6	Pest/PCBs	11/2/92	11/9/92	12/1/92	7	20	none

MEMORANDUM

TO: North Slope ERA Project QA Record June 11, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organochlorine Herbicide Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for organochlorine herbicide analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 8150. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. The laboratory did not analyze a matrix spike and matrix spike duplicate sample. Therefore, the relative percent differences could not be evaluated.

Accuracy. The laboratory did not analyze a matrix spike and matrix spike duplicate sample, therefore, percent recoveries (% R) could not be evaluated. The laboratory did analyze a laboratory control sample (LCS) in which the recoveries were evaluated and were acceptable.

The surrogate recovery was exceeded as noted in "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 10 determinations reported. Out of the 10 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified requiring rejection of the data.

MINOR DEFICIENCIES

Accuracy

The surrogate recovery exceeded the control limits for the method blank. Since this is a blank, no qualification of the sample data was necessary.

Holding Times

The extraction holding time was exceeded for sample B07KP6. Therefore, the sample results were qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: G	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS: Organochlorine Herbicides			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	J or UJ	B07KP7	extraction holding time exceeded

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1D

EPA SAMPLE NO.

B07KP6

HERBICIDE ORGANICS ANALYSIS DATA SHEET

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 5 (g/ml) G Lab File ID: H1120-4DB1701077
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 11/16/92
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 11/22/92
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q	Q
94-75-7	2,4-D	105	~~U~~	UJ
94-82-6	2,4-DB	52.6	~~U~~	UJ
93-76-5	2,4,5-T	26.3	~~U~~	UJ
93-72-1	2,4,5-TP	26.3	~~U~~	UJ
88-85-7	Dinoseb	26.3	~~U~~	UJ
120-36-5	Dichlorprop	105	~~U~~	UJ
1918-00-9	Dicamba	52.6	~~U~~	UJ
75-99-0	Dalapon	52.6	~~U~~	UJ
93-65-2	MCPP	26300	~~U~~	UJ
94-74-0	MCPA	26300	~~U~~	UJ

6/9/93

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

Organochlorine HERBICIDE DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Slope FRH	REVIEWER: G	DATE: 6/9/93
LABORATORY: S - Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soil B07KP6		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		—
Data Summary			✓	—
Chain of Custody Forms		✓	—	—
Sample Analysis Request		✓	—	—
QC Summary				
Surrogate Recovery		✓	—	—
MS/MSD Recovery			✓ See comment 1	
Method Blank Summary		✓	—	—
Sample Data				
Sample Results		✓	—	—
Chromatograms for all samples/extracts		✓	—	—
Quantitation sheets for all samples/extracts		✓	—	—
Extraction data sheets for all samples/extracts		✓	—	—
Instrument time/run logs for all samples/extracts		✓	—	—
Standards Data				
Initial Calibration standard concentrations		✓	—	—
Initial Calibration summary of RRF/RSD data		✓	—	—
Chromatograms for all initial cal. standards		✓	—	—
Quantitation sheets for all initial cal. standards		✓	—	—
Instrument time/run logs for all samples/extracts		✓	—	—
Calibration standard traceability data		✓	—	—
Raw QC Data				
Blanks				
Laboratory Blank results		✓	—	—
Chromatograms for all laboratory blanks		✓	—	—
Quantitation reports for all laboratory blanks		✓	—	—
Matrix Spike/Matrix Spike Duplicates				
LCS ~~MS/MSD~~ Results		✓	—	—
Chromatograms		✓	—	—
6/9/93 Quantitation reports		✓	—	—

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% Solids data sheets		✓		
Calculation formulae			✓	
Instrument Run/Time Logs			✓	
Chemist notebook pages		✓		
Sample preparation sheets		✓		

2. HOLDING TIMES

Were all samples extracted within holding times?	Yes	(No)	N/A
Were all samples analyzed within holding times?	(Yes)	No	N/A

ACTION: If the extraction or analytical holding times were exceeded, but not by a factor of two, qualify all affected results as estimated (J for detects and UJ for nondetects). Otherwise, reject all nondetects (R) and qualify all detects as estimated (J).

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration conducted prior to sample analysis?	(Yes)	No	N/A
Are all RSD values <20%?	(Yes)	No	N/A

ACTION: If the RSD criteria were not met, qualify all results as estimated (J for detects and UJ for nondetects).

3.2 CONTINUING CALIBRATION

Have continuing calibrations been conducted at the proper frequency?	(Yes)	No	N/A
Are the ~~RRFs within ±15%~~ RPDs <15% 7/6/93 for DB1701 column only of the initial calibration average RF?	(Yes)	No	N/A
Are the RT values for the calibration compounds within the retention time windows?	(Yes)	No	N/A

ACTION: If the percent difference criteria or retention time windows are not met, qualify all associated data as estimated (J for detects, UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed at least one method blank per matrix in the sample batch?	(Yes)	No	N/A

Are target compounds present in the laboratory blanks? (Yes) No N/A

ACTION: Qualify all detected results in the samples that are < 5 times the amount in any laboratory blank as nondetects (U).

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No (N/A)

ACTION: Qualify all detected results in the samples that are < 5 times the amount in any valid field blank as nondetects (U).

5. ACCURACY

5.1 SURROGATE RECOVERY

See comment

Are any surrogate recoveries out of specification? (Yes) No N/A

Are any surrogates nondetected? Yes (No) N/A

ACTION: Surrogate recoveries out of specification will require qualification of all associated data as estimated (J for detects and UJ for nondetects). Surrogate recoveries that are 0% will require qualification of all detects as estimated (J) and the rejection of all nondetects (R).

5.2 MATRIX SPIKE RECOVERY

Has the laboratory conducted a ~~MS/MSD~~ LCS analysis per matrix for the sample group? (Yes) No N/A

Are there calculation or transcription errors? Yes (No) N/A — See comment 5

Are MS recoveries within specification? (Yes) No N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are there any calculation or transcription errors? Yes No (N/A)

Are the RPD values within specification? Yes No (N/A)

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are > 5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATES

Are the field duplicate RPDs acceptable? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are the field split RPDs acceptable? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

See comment

Are positive results within the retention time windows? Yes No (N/A)

Are positive results unaffected by interfering peaks? Yes No N/A

ACTION: If positive results are not within the retention time windows qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no potential interferences are present, report the CRQL and if the misidentified peak interferes with the potential detection of a target peak then the reported value is the quantitation limit and the result is qualified as estimated (UJ).

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory reported sample quantitation limits within 5xCRQL levels?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and discuss in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. For [illegible] and [illegible] an MS/MSD [illegible] and the LCS first will be evaluated for % recovery.

2. Surrogate recovery was above the control limit of 25-150 (191% and 190%) for the Blank and LCS. Sample results will not be qualified because of this.

3. LCS concentrations reported are slightly different than re-calculated values from the quantitation report, which may be due to rounding. All values are acceptable.

4. There were no positive identifications.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3410	REVIEWER: CJ	DATE: 10/9/93	PAGE 1 OF 1
COMMENTS: Organochlorine Herbicides			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP7	Herbs	11/2/92	11/16/92	11/21/92	14	5	J or UJ

MEMORANDUM

TO: North Slope ERA Project QA Record June 11, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Organophosphorus Pesticide Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for organophosphorus pesticide analysis. The sample was analyzed by the S-Cubed laboratory using EPA method 8140. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met with the exception of the compounds in the individual mix A with the exception of sulprophos as noted in "Minor Deficiencies".

Accuracy. The laboratory analyzed a laboratory control sample (LCS) instead of a matrix spike (MS) and matrix spike duplicate (MSD) with results summmarized in "Major Deficiencies".

Surrogate recoveries were also outside control limits as noted in "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 21 determinations reported. Out of the 21 determinations reported, a total of 19 determinations were deemed valid which results in a completeness of 90 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

The LCS recoveries were low for merphos (6.2%) and high for bolstar (2192%) and coumaphos (318%). Therefore, sample results were qualified as unusable (R for detects, UR for non-detects).

MINOR DEFICIENCIES

Calibrations

The initial calibration relative percent differences (%RPD) of 25% was exceeded for all compounds in the individual mix A with the exception of sulprophos. Therefore, the results for sample B07KP6 were qualified as estimated (J for detects, UJ for non-detects).

Surrogates

The surrogate control limit of 40 - 140% was exceeded for sample B07KP6 (157%). Therefore, the results have been qualified as estimated (J for detects, UJ for non-detects).

Matrix Spike/Matrix Spike Duplicates

An MS and MSD were not analyzed for this sample delivery group and therefore were not evaluated.

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: CJ	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS: Organophosphorus Pesticides			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	J or UJ	B07KP1 6	Surrogate %R high
Mevphos	R	↓	LCS %R = 6.2%
Bolstar	R		219.2%
Coumaphos	R	↓	↓ 319.2

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1D

EPA SAMPLE NO.

PESTICIDE SOIL ORGANICS ANALYSIS DATA SHEET

B07KP6

Lab Name: S-CUBED Contract: 32359-51
Lab Code: S3 Case No.: 92-321 SAS No.: SDG No.: 3410
Matrix: (soil/water) SOIL Lab Sample ID: 3410-01
Sample wt/vol: 30 (g/ml) G Lab File ID: A1124-6DB1A021
%Moisture: 5.67 decanted: (Y/N) N Date Received: 11/05/92
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/92
Concentrated Extract Volume: 10000 (uL) Date Analyzed: 11/25/92
Injection Volume: 1.00 (uL) Dilution Factor: 1.00
GPC Cleanup: (Y/N) N pH: 8.95 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q	Q
115-90-2	Fensulfothion	53.0	~~U~~	UJ
13194-48-4	Ethoprop	21.2	~~U~~	UJ
150-50-5	Merphos	21.2	~~U~~	~~UJ~~ R
2921-88-2	Chlorpyrifos	21.2	~~U~~	UJ
298-00-0	Parathion-methyl	10.6	~~U~~	UJ
298-02-2	Phorate	10.6	~~U~~	UJ
298-04-4	Disulfoton	10.6	~~U~~	UJ
299-84-3	Ronnel	21.2	~~U~~	UJ
300-76-5	Naled	21.2	~~U~~	UJ
327-98-0	Trichloronate	21.2	~~U~~	UJ
333-41-5	Diazinon	21.2	~~U~~	UJ
34843-46-4	Tokuthion(Prothiofos)	10.6	~~U~~	UJ
35400-43-2	Bolstar(Sulprophos)	10.6	~~U~~	~~UJ~~ R
55-38-9	Fenthion	10.6	~~U~~	UJ
56-72-4	Coumaphos	53.0	~~U~~	~~UJ~~ R
62-73-7	Dichlorvos	10.6	~~U~~	UJ
7786-34-7	Mevinphos	42.4	~~U~~	UJ
8065-48-3	Dematon-O	42.4	~~U~~	UJ
8065-48-3A	Dematon-P	42.4	~~U~~	UJ
86-50-0	Azinphos methyl	53.0	~~U~~	UJ
961-11-5	Stirophos(Tetrachlorvinphos)	53.0	~~U~~	UJ

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

Organophosphorus Pesticides

~~HERBICIDE~~ DATA VALIDATION CHECKLIST - FORM A-4

PROJECT: North Slope ERA	REVIEWER: G	DATE: 6/9/93
LABORATORY: S. Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soils BOTKP10		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓	✓	—
Data Summary		✓	—	—
Chain of Custody Forms		✓	—	—
Sample Analysis Request		✓	—	—
QC Summary				
Surrogate Recovery		✓	—	—
MS/MSD Recovery		✓	✓	See comment
Method Blank Summary		✓	—	—
Sample Data				
Sample Results		✓	—	—
Chromatograms for all samples/extracts		✓	—	—
Quantitation sheets for all samples/extracts		✓	—	—
Extraction data sheets for all samples/extracts		✓	—	—
Instrument time/run logs for all samples/extracts		—	—	✓
Standards Data				
Initial Calibration standard concentrations		✓	—	—
Initial Calibration summary of RRF/RSD data		✓	—	—
Chromatograms for all initial cal. standards		✓	—	—
Quantitation sheets for all initial cal. standards		✓	—	—
Instrument time/run logs for all samples/extracts		—	—	✓
Calibration standard traceability data		—	—	✓
Raw QC Data				
Blanks				
Laboratory Blank results		✓	—	—
Chromatograms for all laboratory blanks		✓	—	—
Quantitation reports for all laboratory blanks		✓	—	—
Matrix Spike/Matrix Spike Duplicates				
~~MS/MSD~~ Results		✓	—	—
Chromatograms		✓	—	—
Quantitation reports		✓	—	—

6/9/93 CJ

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% Solids data sheets		✓		
Calculation formulae			✓	
Instrument Run/Time Logs			✓	
Chemist notebook pages			✓	
Sample preparation sheets		✓		

2. HOLDING TIMES

Were all samples extracted within holding times?	(Yes)	No	N/A
Were all samples analyzed within holding times?	(Yes)	No	N/A

ACTION: If the extraction or analytical holding times were exceeded, but not by a factor of two, qualify all affected results as estimated (J for detects and UJ for nondetects). Otherwise, reject all nondetects (R) and qualify all detects as estimated (J).

3. INSTRUMENT CALIBRATION

3.1 INITIAL CALIBRATION

Was an initial calibration conducted prior to sample analysis?	(Yes)	No	N/A
Are all RSD values <20%?	(Yes)	No	N/A

ACTION: If the RSD criteria were not met, qualify all results as estimated (J for detects and UJ for nondetects).

3.2 CONTINUING CALIBRATION

Have continuing calibrations been conducted at the proper frequency?	(Yes)	No	N/A
Are the ~~RRFs~~ RPDs 25 within ~~±15%~~ of the initial calibration average RF?	Yes	(No) see comment 2	N/A
Are the RT values for the calibration compounds within the retention time windows?	(Yes)	No	N/A

ACTION: If the percent difference criteria or retention time windows are not met, qualify all associated data as estimated (J for detects, UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed at least one method blank per matrix in the sample batch?	(Yes)	No	N/A

See comment 3

Are target compounds present in the laboratory blanks? (Yes) No N/A

ACTION: Qualify all detected results in the samples that are < 5 times the amount in any laboratory blank as nondetects (U).

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No (N/A)

ACTION: Qualify all detected results in the samples that are < 5 times the amount in any valid field blank as nondetects (U).

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? (Yes) No N/A

Are any surrogates nondetected? Yes (No) N/A

ACTION: Surrogate recoveries out of specification will require qualification of all associated data as estimated (J for detects and UJ for nondetects). Surrogate recoveries that are 0% will require qualification of all detects as estimated (J) and the rejection of all nondetects (R).

5.2 MATRIX SPIKE RECOVERY

LCS 9/6/94 3

See comment 4

Has the laboratory conducted a ~~MS/MSD~~ analysis per matrix for the sample group? (Yes) No N/A

Are there calculation or transcription errors? Yes (No) N/A

Are MS recoveries within specification? Yes (No) N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are there any calculation or transcription errors? Yes No (N/A)

Are the RPD values within specification? Yes No (N/A)

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are > 5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATES

Are the field duplicate RPDs acceptable? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are the field split RPDs acceptable? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION 6/9/93 none detected

Are positive results within the retention time windows? Yes No (N/A)

Are positive results unaffected by interfering peaks? Yes No (N/A)

ACTION: If positive results are not within the retention time windows qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no potential interferences are present, report the CRQL and if the misidentified peak interferes with the potential detection of a target peak then the reported value is the quantitation limit and the result is qualified as estimated (UJ).

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory reported sample quantitation limits within 5xCRQL levels?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and discuss in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. Chromatography performed on LCS analysis exceeded equivalency limits. All recoveries will be reviewed.

2. The RPDs were outside (≤ 25) limits for [illegible] all compounds in individual analysis. The results will be qualified as J or UJ (with the exception of ~~sulfoprop~~ sulprophos)

3. The surrogate recovery for the sample B07KP6 is 157% which is above the control limits of 40-140%. All results will be qualified as J or UJ. Surrogate recovery for the LCS is also exceeded however this does not affect sample qualification.

4. The LCS recoveries are outside QC limits of 40-140 as follows; with qualifications as follows

Compound	%R	Qualification
Ethoprop	129	none
Diazinon	6.2	R
Methyl parathion	296.7	none
Phorate	140.9	none
Ronnel	148.4	none
Diazinon	137.6	none
Bolstar	219.2	R
Famphur	318.2	R
Methyl Azinphos	188.5	none

HOLDING TIME SUMMARY - FORM B-1

SDG: 3410	REVIEWER: C Jensen	DATE: 6/9/93	PAGE 1 OF 1

COMMENTS: Organochlorine Pesticides

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP6	OPPCT	11/2/92	11/9/92	11/25/92	7	15	none

MEMORANDUM

TO: North Slope ERA Project QA Record June 10, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: General Chemistry Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for anions, hexavalent chromium, and nitrate+nitrite as N. The sample was analyzed by the S-Cubed laboratory using routine laboratory protocols. The sample identification number, collection date, and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met with the exception of the matrix spike recovery for chloride as noted in "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. A total of one (1) sample was validated in this data set with a total of nine (9) determinations reported. Out of the nine (9) determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified during validation.

MINOR DEFICIENCIES

Holding Time

The holding time of 2 days was exceeded for ortho-phosphate; therefore, the sample result was qualified as estimated (J).

Matrix Spike

The matrix spike recovery for chloride was 10.2%. Therefore, the sample result was qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). The data are usable for decision making purposes.

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

BJ - Indicates the analyte was analyzed for and detected at a concentration greater than the IDL but less than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

J - Indicates the analyte was analyzed for and detected at a concentration greater than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the analyte was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the analyte was analyzed and detected; however, due to an identified quality control deficiency the data are unusable.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: SJ	DATE: 6/10/93	PAGE 1 OF 1
COMMENTS: anions			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
PO4	J or UJ	B07KP6	holding time exceeded
Chloride	J	B07KP6	MS %R = 10.2%

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

ANIONS ANALYSIS

LABORATORY:	S-CUBED
CLIENT:	WHC
PROJECT:	92-359
LOT #:	3410
FILE #:	ANI3410S
DISK #:	ANI1123
METHOD NO.:	300.0
UNIT:	MG/KG

DATA REVIEWER: CN 12/02/92
PROJECT REVIEWER:

CHARGE #:	32359-51
DATE SAMPLED:	11-02-92
DATE RECEIVED:	11-05-92
PREP DATE:	11-09-92
DATE ANALYZED:	11-13-92
SAMPLE TYPE:	SOIL

RE 5/18

LAB ID	F	Cl	NO2	Br	NO3	PO4	SO4	Cr III
3410-01	1.96	10.9 J	~~<0.01~~ (m) <0.2	~~<0.1~~ (m) <0.5	13.0	1.43 J	~~270~~ 311	~~1.8~~
~~3410-01D~~ (m)		~~13.2~~ (m)					~~311~~ (m)	

SO_4 result was required 10x dilution due to high concentration level. All other anions were reported on straight analysis run. All QC requirement were met. The sample was leached (20 gm into 100 mL) into DI type II water prior to analysis.

6/10/93

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-231
Sampling Date: 11/02/92

Analyst: EA
Review : ew 11/19
Receipt. Date: 11/05/92

Analyte: CRVI

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration	MDL
3410-01	S	A	BO7KP6	< MDL	0.133

Method Detection Limit: 5.000 ug/L
Preparation Method: SW7196
Analytical Method: SW7196
Preparation Date: 11/09/92
Analysis Date: 11/11/92

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All q c requirment were excellent. gj 6/10/93 The sample was required 1 to 5 dilution prior to analysis due to matrix interferences. The sample of 20 gm was leached into 100 mL DI type II H_2O prior to analysis.

S - CUBED

Trace Inorganics Report

Client: WHC
Project: 92-231
Sampling Date: 11/02/92

Analyst: EA
Review : [illegible] 11/19
Receipt. Date: 11/05/92

Analyte: NO2/NO3

S - CUBED Sample No.	MT	UN	Client Sample ID	Concentration as N	MDL
3410-01	S	A	BO7KP6	3.34	0.530

Method Detection Limit: 0.100 mg/L
Preparation Method: 353.3
Analytical Method: 353.3
Preparation Date: 11/09/92
Analysis Date: 11/11/92

sj 6/10/93

UN = Units = (A=mg/kg B=ug/L C=mg/L) MT = Matrix = (S=Soil W=Water)

Comments: All QC requirement were within the control limit
The sample of 20 gm was leached into 100 mL DI type II H_2O prior to analysis.

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: North Slope ERA	REVIEWER: CJ	DATE: 6/10/93
LABORATORY: S-Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soil BOTKPLe		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓	—	—
Cover Page	—	✓	—
Traffic Reports/Chain-of-Custody	✓	—	—
Sample Analysis Data Report Forms	✓	—	—
Standards Data	✓	—	—
QC Summary			
Blanks Summary Report Forms	✓	—	—
Spike Sample Recovery Report Forms	✓	—	—
Duplicate Sample Analysis Report Forms	✓	—	—
Laboratory Control Sample Report Forms	—	—	—
Raw Data			
Ion Chromatograph Chromatograms	✓	—	—
TOC and TOX Instrument Printouts	—	—	✓
Laboratory Bench Sheets	✓	—	—
Additional Data			
Laboratory Sample Preparation Logs	✓	—	—
Instrument Run Logs	✓	—	—
Internal Laboratory Chain-of-Custory	✓	✓ CJ 6/10/93	
Percent Solids Analysis Records	—	✓	—
Reduction Formulae	—	✓	—
Chemist Notebook Pages	—	✓	—

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes (No) N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	(Yes)	No	N/A
Are the correlation coefficients ≥0.995?	(Yes)	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	(N/A)
Was the titrant normality checked?	Yes	No	(N/A)

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	(Yes)	No	N/A
Are ICV and CCV percent recoveries within control?	(Yes)	No	N/A
Are there calculation errors?	Yes	(No)	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	(No)	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?	Yes	No	(N/A)

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

6/10/93 See comment 1

Are spike recoveries within the acceptance limits?	(Yes)	(No)	N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

See comment 2

Are RPD values within the acceptance limits? (Yes) No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	(Yes)	No	N/A
Are instrument detection limits below the CRDL?	(Yes)	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. The MS recovery for chloride was 10.3% for sample B07KDC6. The sample result will be qualified as estimated, J.

2. The results for CrVI for B07KP6 were < MDL for both sample and replicate. The RPD was reported as 30.9, however, ~~the correct RPD is not calculable.~~ Since the results were < MDL this RPD is OK.

MEMORANDUM

TO: North Slope ERA Project QA Record June 11, 1993

FR: Christina Jensen, Golder Associates Inc.

RE: Inorganic Analysis Data Validation Summary for 3410-SCU-080

INTRODUCTION

This memo presents the results of data validation on data package 3410-SCU-080 consisting of one soil sample submitted for inorganics analysis. The sample was analyzed by the S-Cubed laboratory using CLP protocols. The sample identification, collection date and sample media are described in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07KP6	11/02/92	SOIL

Data validation was conducted in accordance with the WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met with the exception of selenium GFAA duplicate injection performance as noted in "Minor Deficiencies". The precision could not be evaluated based on matrix spike (MS) and matrix spike duplicate (MSD) results or laboratory duplicate results because the laboratory did not analyze these samples.

Accuracy. The laboratory did not analyze an MS or MSD. A laboratory control sample was analyzed and evaluated for accuracy with deficiencies noted in "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data with no data correction necessary.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. A total of one sample was validated in this data set with a total of 23 determinations reported. Out of the 23 determinations reported, all determinations were deemed valid which results in a completeness of 100 percent. This completeness percentage meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

There were no major deficiencies identified during data validation.

MINOR DEFICIENCIES

GFAA Duplicate Injections

The relative standard deviation (%RSD) for selenium exceeded the QC limit of 20%. Therefore, the result for sample B07KP6 was qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, North Slope ERA Data Validation, Statement of Work, Revision 0, May 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). The data are usable for decision making purposes.

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

BJ - Indicates the analyte was analyzed for and detected at a concentration greater than the IDL but less than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

J - Indicates the analyte was analyzed for and detected at a concentration greater than the CRQL. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the analyte was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the analyte was analyzed and detected; however, due to an identified quality control deficiency the data are unusable.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 3410	REVIEWER: SJ	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS: Inorganics			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Selenium	J or UJ	B07KP6	CFAA %R SD

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

3410-01

Lab Name: S_CUBED_____ Contract: 32359-51__

Lab Code: S3____ Case No.: 92231 SAS No.: _____ SDG No.: 3410__

Matrix (soil/water): SOIL_ Lab Sample ID: 3410-01___

Level (low/med): LOW__ Date Received: 11/05/92

% Solids: _94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG Q

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13400			P
7440-36-0	Antimony	12.7	U		P
7440-38-2	Arsenic	10.6	B		F
7440-39-3	Barium	157			P
7440-41-7	Beryllium	0.64	B		P
7440-43-9	Cadmium	0.64	B		P
7440-70-2	Calcium	16100			P
7440-47-3	Chromium	21.0			P
7440-48-4	Cobalt	14.6			P
7440-50-8	Copper	27.1			P
7439-89-6	Iron	27800			P
7439-92-1	Lead	29.9			F
7439-95-4	Magnesium	7700			P
7439-96-5	Manganese	571			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	20.8			P
7440-09-7	Potassium	2330			P
7782-49-2	Selenium	6.4	~~U~~		F UJ
7440-22-4	Silver	7.0			P
7440-23-5	Sodium	539	U		P
7440-28-0	Thallium	6.4	U		F
7440-62-2	Vanadium	52.2			P
7440-66-6	Zinc	96.1			P

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: 5/6/9/93

B07KP6_____

FORM I - IN

7/88

002

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: South Slope FRA	REVIEWER: CJ	DATE: 6/5/93
LABORATORY: S-Cubed	CASE: 92-321	SDG: 3410
SAMPLES/MATRIX: Soil BOAKP6		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓	—	—
Cover Page		✓	—	—
Traffic Reports		✓	—	—
Sample Data				
Inorganic Analysis Data Sheets		✓	—	—
Standards Data				
Initial and Continuing Calibration Verification		✓	—	—
CRDL Standard for AA and ICP		✓	—	—
QC Summary				
Blanks		✓	—	—
ICP Interference Check Summary		✓	—	—
Spike Sample Recovery		—	✓	—
Post-Digestion Spike Sample Recovery		—	✓	—
Duplicate		✓	✓	—
Laboratory Control Sample		—	—	—
Standard Addition Results		—	✓	—
ICP Serial Dilutions		✓	—	—
Instrument Detection Limits		✓	—	—
ICP Interelement Correction Factors		✓	—	—
ICP Linear Ranges		✓	—	—
Preparation Log		✓	—	—
Analysis Run Log		✓	—	—
Raw Data				
ICP Raw Data		✓	—	—
Furnace AA Raw Data		✓	—	—
Mercury Raw Data		✓	—	—
Cyanide Raw Data		—	—	✓
Additional Data				
Internal laboratory chain-of-custody		—	✓	—
Laboratory Sample Preparation Records		✓	—	—

Data Package Item	Present?:	Yes	No	N/A
Percent Solids Analysis Records		—	✓	—
Reduction Formulae		—	✓	—
Instrument Run Logs		—	✓	—
Chemist Notebook Pages		—	✓	—

2. HOLDING TIMES

Have all samples been analyzed within holding times?	(Yes)	No	N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	(Yes)	No	N/A
Are the correlation coefficients ≥ 0.995?	Yes	No	N/A
Was a midrange cyanide standard distilled?	Yes	No	(N/A)

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is < 0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control?	(Yes)	No	N/A
Are there calculation errors?	Yes	(No)	N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency?	(Yes)	No	N/A
Are the AB solution %R values within control?	(Yes)	No	N/A
Are there calculation errors?	Yes	(No)	N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

See comment 1

Are target analytes present in the laboratory blanks? (Yes) No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No (N/A)

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

See comment 2

Are spike recoveries within the control limits? Yes No (N/A)

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

jb 9/9/93 See comment 3

Are percent recoveries within the acceptance limits? (Yes) (No) N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

See comment 4

Are RPD values acceptable? Yes No (N/A)

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? (Yes) No N/A

Is there evidence of negative interference? Yes (No) N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No (N/A)

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No (N/A)

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? (Yes) No N/A

Are applicable duplicate injection RSD values within control? Yes (No) N/A

If no, were samples rerun once as required? Yes (No) N/A

Does the RSD for the rerun fall within the control limits? Yes No (N/A)

Were analytical spike recoveries within the control limits? (Yes) No N/A

If no, were MSA analyses performed when required?	Yes	No	(N/A)
Are MSA correlation coefficients ≥0.995?	Yes	No	(N/A)
If no, was a second MSA analysis performed?	Yes	No	(N/A)

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	(Yes)	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	(Yes)	No	N/A
Are all detection limits below the CRQL?	(Yes)	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	(Yes)	No	N/A
Were project specific data quality objectives met for this analysis?	(Yes)	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

1. Lead and arsenic were detected in the lab-prep. blanks at .7 and 1.5 $\mu g/Kg$. The data qualification was done on associated samples because the sample results are < 5 x the blank values.

2. The laboratory did not analyze an MS/MSD. The LCS will be reviewed.

3. The LCS % R was 139.5 (limits 80-120) for Selenium. However, the selenium value is < IDL so no qualification is necessary.

4. The laboratory did not perform a duplicate analysis. No qualification was done because of this.

HOLDING TIME SUMMARY - FORM B-1

SDG: 3410	REVIEWER: C Juneau	DATE: 12/9/93	PAGE 1 OF 1
COMMENTS: Inorganics			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07KP6	ICP	11/2/92	11/12/92	11/17/92	10	5	none
B07KP6	HH	11/2/92	11/11/92	11/16/92	9	5	none
B07KP6	Hg	11/2/92	11/13/92	H 11/13/92	11	0	none
				11/16/92			

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 3410	REVIEWER: C. Jensen	DATE: 6/9/93	PAGE 1 OF 1
COMMENTS:			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER 6/9/93
B07KP6	arsenic	.7			mg/kg	3.5		B07KP6	J+ note
	lead	1.58			mg/kg	7.9		B07KP6	J+ note